

IN THE CLAIMS

Please cancel claims 17, 20, 21, 26-44, 47-51, 53-104 and 109-207 without prejudice.

Please amend the following claims and add new claims 208-220.

1. (Currently Amended) An apparatus for wet processing individual wafers, comprising:
means for holding ~~the wafer~~ a wafer having a non-device side and a device side over
means for providing acoustic energy such that said means for providing acoustic energy is
adjacent to said wafer nondevice side;
~~means for providing acoustic energy to a non-device side of the wafer;~~ and
means for flowing a fluid onto a said device side of the wafer.
2. (Original) The apparatus for wet processing individual wafers of claim 1, wherein the sonic energy strikes the wafer non-device side perpendicular.
3. (Original) The apparatus for wet processing individual wafers of claim 1, further comprising:
means for mounting one or more acoustic wave transducers; and
means for positioning the one or more acoustic wave transducers to be parallel to and facing the non-device side of the wafer.
4. (Original) The apparatus for wet processing individual wafers of claim 1, further comprising:
means for flowing a liquid between the one or more acoustic wave transducers and the non-device side of the wafer.

5. (Original) The apparatus for wet processing individual wafers of claim 1, wherein means for providing acoustic energy to a non-device side of the wafer is carried out by a platter having a front side and a back side; and the one or more acoustic wave transducers are mounted on the platter backside.
6. (Original) The apparatus for wet processing individual wafers of claim 1, further comprising:
 - a device for rotating the wafer.
7. (Original) The apparatus for wet processing individual wafers of claim 1, further comprising:
 - a device for linearly transporting the wafer.
8. (Original) The apparatus for wet processing individual wafers of claim 1, wherein means for flowing a liquid onto the device side of a wafer is a nozzle positioned to direct a flow onto the device side of the wafer.
9. (Original) The apparatus for wet processing individual wafers of claim 3, wherein the one or more acoustic wave transducers are a piezoelectric material.
10. (Original) The apparatus for wet processing individual wafers of claim 5, wherein the platter is positioned parallel to the wafer surface, with the platter front side facing the wafer non-device side.

11. (Original) The apparatus for wet processing individual wafers of claim 10, wherein the platter diameter is at least 95% the diameter of the wafer.
12. (Original) The apparatus for wet processing individual wafers of claim 11, wherein the one or more acoustic wave transducers are mounted on the platter backside to cover 50-100% of the platter backside area.
13. (Original) The apparatus for wet processing individual wafers of claim 3, wherein the one or more acoustic wave transducers cover the radius of a wafer.
14. (Original) The apparatus for wet processing individual wafers of claim 3, wherein the one or more acoustic wave transducers cover the diameter of a wafer.
15. (Original) The apparatus for wet processing individual wafers of claim 3, wherein the one or more acoustic wave transducers provide acoustic energy to cover 50-100% of the non-device side of the wafer.
16. (Original) The apparatus for wet processing individual wafers of claim 1, wherein means for providing the one or more acoustic wave transducers to the non-device side of the wafer is constructed such as to have a resonance frequency of $5.4 \text{ MHz} \pm 30\%$ for 300 mm wafers.
17. (Canceled)

18. (Original) The apparatus for wet processing individual wafers of claim 1, wherein means for providing the one or more acoustic wave transducers to a non-device side of the wafer is constructed such as to have a resonance frequency less than 1.5 MHz.

19. (Original) The apparatus for wet processing individual wafers of claim 1, wherein the provided acoustic energy is pulsed.

20-21. (Canceled)

22. (Original) The apparatus for wet processing individual wafers of claim 5, further comprising a through hole in the platter for flowing a liquid.

23. (Original) The apparatus for wet processing individual wafers of claim 22, further comprising a fluid feed tube attached to the through hole at the platter backside.

24. (Original) The apparatus for wet processing individual wafers of claim 5, wherein a coating is applied to the platter front side.

25. (Original) The apparatus for wet processing individual wafers of claim 24, wherein the coating is a fluoropolymer.

26-44. (Canceled)

45. (Currently Amended) An apparatus for wet processing individual wafers, comprising:
a platter having a front side and a backside, comprising:
a coating on the platter front side,
a greater diameter than the wafer to be processed,

a fluid feed port at a pivot point of the platter,
a plurality of megasonic piezoelectric transducers on the backside of the platter,
such that the transducers cover greater than 80% of the platter area;
a wafer bracket ~~capable of rotation up to 6000 rpm while~~ to position a wafer having a device side and a non-device side over said platter such that said ~~positioning a non-device side of the wafer is positioned~~ substantially parallel to and centered over the platter front side so that a gap is formed between said wafer non-device side and said platter frontside; and
a nozzle capable of directing a fluid flow toward a said device side of the wafer.

46. (Currently Amended) The apparatus for wet processing individual wafers of claim [[1]] 45, wherein the plurality of transducer areas provide between 90-100% coverage of the wafer non-device side.

47-51. (Canceled)

52. (Currently Amended) The apparatus of claim ~~1~~, ~~further comprising:~~
~~— means for providing an efficiency of at least 30% of the power applied to the~~
~~transducers reaches the wafer~~ 45 wherein said wafer bracket is capable of rotation up to 6000 rpm.

53-104. (Canceled)

105. (Currently Amended) An apparatus for processing individual wafers, comprising:
a rotatable wafer holding bracket for positioning a wafer having a top side and a bottom side over a platter;
means for flowing a first chemical between the wafer and a said platter; and

means for providing acoustic energy to a bottom side of the wafer said means for providing acoustic energy adjacent to said bottom side of the wafer.

106. (Original) The apparatus of claim 105, further comprising:

means for keeping the wafer topside dry.

107. (Original) The apparatus of claim 105, further comprising:

means for applying a second chemical to the wafer topside.

108. (Original) The apparatus of claim 107, further comprising:

means for applying acoustic energy to the topside of the wafer.

109-207. (Canceled)

208. (New) An apparatus for wet processing a wafer comprising:

a platter having a frontside and backside wherein said platter includes a plurality of megasonics transducers formed on said platter backside;

a wafer holder to position a wafer having a frontside and backside above said platter wherein said wafer backside is separated by a gap from said platter frontside;

an opening in said platter to flow a fluid in said gap between said wafer backside and said platter frontside; and

a nozzle positioned over said wafer frontside for directing a cleaning fluid onto said frontside of said wafer.

209. (New) The apparatus of claim 208 wherein said hole is positioned substantially in the center of said platter.

210. (New) The apparatus of claim 208 wherein said hole is slightly offset from the center of said platter.

211. (New) The apparatus of claim 208 wherein said platter holds said megasonics transducers substantially parallel to the backside of said wafer.
212. (New) The apparatus of claim 208 wherein said megasonics transducers cover at least 80% of said wafer backside.
213. (New) The apparatus of claim 208 wherein said platter has a diameter greater than the diameter of said wafer.
214. (New) An apparatus for wet processing a wafer comprising:
a platter having a plurality of megasonics transducers;
a wafer holder to position a wafer having a device side and a non-device side above said platter such that said wafer non-device side is separated by gap from said platter; and
a nozzle to provide a cleaning fluid onto said wafer device side.
215. (New) The apparatus of claim 214 further comprising an opening in said platter to flow a fluid in said gap between said wafer non-device side and said platter.
216. (New) The apparatus of claim 214 wherein said megasonics transducers are formed on said platter backside.
217. (New) The apparatus of claim 214 wherein said platter holds said megasonics transducers substantially parallel to the said wafer non-device side.
218. (New) The apparatus of claim 214 wherein said megasonics transducers cover at least 80% of said wafer non-device side.
219. (New) An apparatus for wet processing a wafer comprising:

a wafer holder to position a wafer having a frontside and backside above a platter having a frontside and backside such that said wafer backside is separated by a gap from said platter frontside;

a plurality of megasonics transducers formed on said platter backside wherein said megasonics transducers covers at least 80% of said wafer backside and wherein said platter positions said megasonics transducers substantially parallel to the backside of said wafer and wherein said platter has a diameter greater than the diameter of said wafer;

an opening in said platter to flow fluid in said gap between said wafer backside and said platter frontside; and

a nozzle positioned above said wafer frontside for directing a cleaning fluid onto said wafer frontside.

220. (New) The apparatus of claim 219 wherein said megasonics transducers provide full coverage of said wafer backside.